

Appl. No.: 10/752,425
Amdt. dated 12/09/2005
Reply to Office action of 09/27/2005

REMARKS/ARGUMENTS

In the Office Action dated September 27, 2005, Claims 1-30 are pending. Claims 1-14 have been elected for prosecution, and the remaining claims are withdrawn above. Claim 8 is rejected under 35 U.S.C. § 112, second paragraph. Claims 1-5 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,215,834 to Dunlap. Claims 1, 6, 7, 9, and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 2,024,587 to Lehmann in view of Dunlap. Claim 11 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Lehmann in view of Dunlap and U.S. Patent No. 1,734,812 to Krell. Claim 12 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Dunlap in view of U.S. Patent No. 1,549,061 to Chenu. Claims 13 and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Dunlap in view of U.S. Patent No. 6,427,943 to Yokomaku, et al.

Applicant first addresses the rejection of Claim 8 made under 35 U.S.C. § 112, second paragraph. The Office Action states that Claim 8 is rejected because, while the specification does enable the use of an internal gas bag, the claim is inconsistent in scope from Claim 1 because "Claim 1 is drawn to a method for launching in which the lift gas and second gas are introduced together in the same envelope, separated only by a small region of mixed gas. In contrast, claim 8 introduces a gas bag for receiving the lift gas, which entirely eliminates a mixed gas region." Office Action, page 4.

Applicant respectfully traverses on the basis that Claims 1 and 8 are not inconsistent, and the specification enables the features of both claims used separately or in combination. In particular, the Examiner's attention is directed to pages 11 and 12 of the specification, which describes that "a gas bag 80 can be provided in the envelope 56 and configured to receive the lift gas from the gas source 40 to keep the lift gas from mixing with the second gas in the envelope 56 until a desired time." Page 11, lines 4-7. The specification further describes that launch can be "accomplished by releasing the aircraft 50 from the first mast 12 so that the aircraft 50 rotates to a vertical position, similar to that illustrated in Figure 8. . . . The ripcord 88 is used to open the gas bag 80 so that the lift gas in the gas bag 80 is released therefrom in the envelope 56. . . . The lift gas then begins to mix with the second gas in the envelope 56 to form the boundary layer 68, as described in connection with Figure 8." Page 11, line 32 – page 12, line 5. Thus, as described in the application, the use of a gas bag is not inconsistent with the formation of a layer

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of mixed gas. More particularly, the feature of raising a first end of the aircraft by "at least partially filling a gas bag in the envelope with the lift gas such that the gas bag lifts the first end of the aircraft" (Claim 8) is not inconsistent with the feature of "introducing the lift gas into the envelope of the aircraft so that the aircraft is buoyant and the envelope is substantially full of a combination of the lift gas and the second gas, the lift gas and the second gas being substantially separate in the envelope with a mixed gas formed by the lift and second gases therebetween" (Claim 1). Accordingly, Applicant respectfully submits that Claim 8 is proper and requests withdrawal of the rejection under 35 U.S.C. § 112.

Turning now to the rejections made under 35 U.S.C. § 102(b) and § 103(a), Applicant respectfully traverses. Claim 1 is directed to a method for launching an aircraft having an envelope for receiving a lift gas that is lighter than air. The method includes providing in the envelope a second gas that is heavier than the lift gas, and "introducing the lift gas into the envelope of the aircraft so that the aircraft is buoyant and the envelope is substantially full of a combination of the lift gas and the second gas, the lift gas and the second gas being substantially separate in the envelope with a mixed gas formed by the lift and second gases therebetween." That is, Claim 1 recites that a mixed gas formed by the lift and second gases is formed between the lift gas and the second gas. None of the cited references discloses such a method in which the lift gas and second gas are substantially separate in an envelope with a mixed gas formed by the lift and second gases therebetween. To the contrary, Dunlap discloses compound aerostat that includes first and second enclosures that are contained in a single envelope. The first enclosure contains helium and methanol, and the second enclosure contains a mixture of ammonia. The Office Action states that the helium and methanol in the first enclosure correspond to the "lift gas" recited in Claim 1, and the mixture of ammonia corresponds to the "second gas" recited in Claim 1. However, the Office Action does not allege that a mixed gas is formed between the helium/methanol and the mixture of ammonia. Indeed, Applicant asserts that Dunlap does not teach or suggest such a mixed gas. Instead, Dunlap teaches that separate enclosures are used for the helium/methanol and the mixture of ammonia. Accordingly, Applicant respectfully submits that Claim 1 is allowable over Dunlap.

Dependent Claims 2-5, also rejected as being anticipated by Dunlap, are allowable for the same reasons as Claim 1. Further, these dependent claims provide additional bases of distinction

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over Dunlap. For example, Claim 2 recites "providing air as the second gas in the envelope." The Office Action states that Dunlap shows in Figure 1 that "the envelope (12) is open to the atmosphere, and the envelope is filled with one of the lift gases, ammonia." Applicant respectfully disagrees that Figure 1 illustrates the envelope being open to the atmosphere. Dunlap describes no such feature. Moreover, Dunlap specifically states that the displacement of the secondary enclosure 16 (and hence the envelope 12) is controlled by the absorption of the ammonia by the absorbent (i.e., lithium, which is in the third enclosure 18). It is unclear how the displacement would be controlled if the secondary enclosure 16 were also open to the atmosphere and therefore free to vent or receive air, which would also affect the displacement of the secondary enclosure 16 and the envelope 12. Further, Applicant notes that Claim 2 recites that air is provided "as the second gas," i.e., the same gas that is mixed with the lift gas to form the mixed gas according to Claim 1. Dunlap does not teach or suggest that atmospheric air is mixed with the helium/methanol in the first enclosure 14. Therefore, Claim 2 is allowable for each of these reasons in addition to the reasons set forth above in connection with Claim 1.

Claims 1, 6, 7, 9, and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lehmann in view of Dunlap. Regarding Claim 1, Applicant respectfully submits that Lehmann fails to cure the deficiencies of Dunlap noted above. That is, Lehmann also fails to teach or suggest the recited method in which the lift gas and second gas are substantially separate in an envelope with a mixed gas formed by the lift and second gases therebetween. Indeed, as noted by the Examiner, Lehmann fails to teach the provision of a second gas. Accordingly, even in combination, Lehmann and Dunlap fail to teach or suggest the method of Claim 1. Therefore, Claim 1 is allowable over Lehmann and Dunlap, as are each of the pending dependent Claims 2-14.

Further, the various dependent Claims provide additional features that are distinguishable from the cited references. For example, Claim 7 depends from Claim 6 and further recites "connecting a buoyant balloon to the first end of the aircraft such that the balloon lifts the first end of the aircraft." The Office Action cites "official notice that it would be obvious to one skilled in the art that the initial upward motion provided by a crew pushing up, or by the starting device taught by Lehmann is the equivalent of launching an airship with a buoyant balloon attached to one end of an airship, or by releasing one end of an airship ahead of the other to

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provide an angled launch." Applicant respectfully disagrees. Lehmann notes that lighter-than-air aircraft need no special means for starting from the ground "as they are lighter than the surrounding air and consequently have a surplus buoyancy which causes the ship to move upward as soon as it is released from the ground crew. But it is usual to order the ground crew to throw the ship upward thus transferring to the ship a starting velocity so that it may sooner reach the altitude which allows for movement horizontally, driven by its propellers." Col. 1, lines 1-12. Thus, the starting device of Lehmann imparts an upward impulse so that the airship lifts faster than if allowed to rise merely by buoyancy alone. Lehmann does not teach or suggest using an additional buoyant device to provide such an impulse. In fact, given that Lehmann is directed to a device for providing an impulse to lift more quickly than buoyancy alone, it is unclear why a second buoyant device would be provided.

Claim 10 depends from Claim 6, which recites "raising a first end of the aircraft to an elevation higher than a second distal end of the aircraft such that a longitudinal axis of the aircraft extending between the first and second ends is inclined at an angle relative to horizontal." Claim 10 further recites that "said raising step comprises at least partially filling the envelope with the lift gas and releasing the first end of the aircraft such that the lift gas raises the first end of the aircraft." The Examiner relies on the above official notice for the rejection of Claim 10. Applicant again disagrees. Lehmann states that "[g]enerally the ground crew imparts the upward impulse to the lowest forward point of the airships, for example the forward car or gondola; but in certain cases it may be advisable to give a similar impulse to the rear car also." Col. 1, lines 13-17. However, as noted above, Lehmann is directed to a device for providing an impulse to the aircraft for starting the ship's ascent, i.e., so that the ship ascends more quickly than it would by its buoyancy alone. Even if such an impulse were applied in such a way that the ship could ascend in a non-horizontal orientation, Lehmann does not provide any suggestion or motivation for using the buoyancy of the aircraft to raise one end thereof before launch. In fact, Lehmann specifically teaches away from a launch in which the buoyancy of the aircraft is relied upon for providing the sole lifting force. Therefore, it would not have been obvious in light of Lehmann to use the aircraft's own buoyancy to re-orient the aircraft before launch as set forth in Claim 10. If the Examiner is aware of other prior art that provides a basis for the official notice that is taken, Applicant respectfully requests that such prior art be cited and made of record.

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Claim 11, which stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Lehmann in view of Dunlap and Krell, further recites "rollably moving at least one of the masts after said securing step" during the launch of the aircraft. The Office Action acknowledges that neither Lehmann nor Dunlap discloses this feature and therefore relied on Krell. Applicant notes that Krell is specifically directed to an apparatus for landing, not launching, airships. Accordingly, it would not have been obvious to modify the proposed combination of Lehmann and Dunlap by the teachings of Krell to provide a method for launching an aircraft as claimed.

Claim 13, which stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Dunlap in view of Yokomaku, et al., recites "at least partially venting the lift gas from the envelope and receiving air in the envelope such that the aircraft descends with the envelope in a substantially filled configuration." Claim 14, which further recites repeating the introducing, releasing, and first and second venting steps in order to repeat the launching of the aircraft, is rejected on the same basis. In this regard, the Office Action acknowledges that Dunlap does not teach venting step but asserts that it would have been obvious in light of Yokomaku, et al. Applicant respectfully disagrees. The helium/methane in the primary enclosure 14 of Dunlap is not vented. In fact, Dunlap specifically distinguishes systems in which gas is dumped (Col. 1, lines 18-23) and provides the secondary enclosure 16 for controlling the displacement of the envelope 12. It would not have been obvious to modify Dunlap to also vent the helium/methane from the primary enclosure 14. Further, as noted above, Dunlap does not teach that air is received in the envelope, and it would not have been obvious to modify Dunlap for the same reasons. Accordingly, Applicant submits that Claims 13 and 14 are allowable for these reasons in addition to the reasons set forth above.

For the above reasons, Applicant submits that Claims 1-14 are allowable over the cited references.

Information Disclosure Statements

Three of the references cited in the Office Action (U.S. Patent Nos. 4,215,834 to Dunlap, 1,734,812 to Krell, and 1,549,061 to Chenu), were not previously made of record and were not identified on the "Notice of References Cited" that was received with the Office Action. Accordingly, Applicant is submitting an Information Disclosure Statement herewith, which

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includes PTO Form 1449, for the purpose of identifying Dunlap, Krell, and Chenu and clarifying that these references have been made of record. Accordingly, it is requested that an initialed copy of the Form 1449 be forwarded to the undersigned with the next communication from the PTO. Since each of the references has been previously cited and relied upon in the Office Action, Applicant respectfully submits that no fee is due.

* * * *

CONCLUSIONS

In view of the remarks presented above, Applicant submits that the present application is in condition for allowance. As such, the issuance of a Notice of Allowance is therefore respectfully requested. In order to expedite the examination of the present application, the Examiner is encouraged to contact Applicant's undersigned attorney in order to resolve any remaining issues.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,


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December 9, 2005

Date